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BUILDING 52 DEMOLITION WASTE MANAGEMENT STRATEGY REPORT
1 RIVER STREET
HASTINGS-ON-HUDSON, NEW YORK

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1. Introduction

Haley & Aldrich Inc. has been contracted by ARCO Environmental Remediation Limited (AERL) to support decommissioning and demolition activities of Building 52 located within the State Superfund Site #360022 at 1 River Street, Hastings-on-Hudson, New York (Site). The purpose of sampling was to evaluate waste streams resulting from demolition of Building 52 and to remove portions of the slab that exceed 50 parts per million (PPM) as an Interim Response Measure (IRM) prior to demolition of the building. Based on reviews of historical manufacturing processes at the site, polychlorinated biphenyls (PCBs) were used for electrical cable manufacturing during World War II; use of PCBs at the site was discontinued after World War II. Building material samples were previously collected between 2006 and 2009 to screen for the presence of PCBs for the purpose of preliminary waste stream management evaluations. Based on results of this screening and review of historical equipment layouts, additional sampling was conducted in 2015 and 2016 to evaluate areas that contain PCBs and delineate areas that contain concentrations of PCBs greater than 50 PPM and to determine options to appropriately manage materials resulting from the demolition of Building 52. Specifically, the following was evaluated:

- the presence of PCBs that exceed TSCA requirements for removal;
- the extent of PCBs within areas containing concentrations of PCBs greater than 50 PPM for the purposes of removal prior to demolition.

This report presents the findings of these investigations and provides recommendations for the waste management strategies for the disposal of building materials with respect to the New York Department of Environmental Conservation (NYDEC) and the Toxic Substance Control Act (TSCA) (40 Code of Federal Regulations (CFR) 761) regulated under the United States Environmental Protection Agency.

1.1 SITE SETTING AND BACKGROUND

Building 52 is located in the north east corner of the State Superfund Site #360022. The Site is approximately 28 acres, and is located on the eastern bank of the Hudson River within the confines of the Hudson River Valley (Figure 1 in Appendix A). The Site was created by filling the Hudson River between the mid-1800s and the early 1900s with the placement of uncontrolled fill using a series of bulkhead walls of various construction types along the western edge. The ground surface at the Site is generally flat with a maximum elevation change of approximately 8 ft. across the site.

The Site began industrial operations in the mid to late 1800s and contained several individual businesses that produced diverse products including lumber, plaster, conduit, pipe, electrical cables, and pavement. Two electrical cable companies merged in 1896 and formed the National Conduit & Cable Company, which constructed Building 52 in 1911. Mergers with other business over the next 20 years resulted in the site being owned by the Anaconda Wire & Cable Corporation, which was a subsidiary of the Anaconda Copper Mining Company.

Anaconda Wire & Cable Corporation was awarded a contract from the United States Navy (Navy) to manufacture electric cable for shipboard use during World War II. The contract required that shipboard cable be heat and flame resistant to withstand heat generated from conducting high electric currents and damage to vessels. PCB mixtures were used to manufacture these products during World War II; PCB use in the manufacturing of cable at the site ceased once the war ended.

After World War II, the Anaconda Wire & Cable Corporation produced electrical and television cable until it ceased operations in 1975. Atlantic Richfield Company (AR) purchased the Anaconda Wire & Cable Corporation in 1977, never operated the facility, and then sold the Site in 1978. In 1998, AR's affiliate, AERL, purchased the Site in order to facilitate environmental investigation and remediation efforts.

1.2 SITE REGULATORY FRAMEWORK

Multiple environmental site investigations have been completed at the Site (including within and adjacent to Building 52), beginning in the mid-1990s, to determine the nature and extent of PCBs. Investigations determined that chemicals used in the manufacturing processes are present in off shore sediments and onsite soils including those adjacent to Building 52, beneath the floor slab (sub-slab), and on or within building materials.

Administratively, the Site has been separated into two Operable Units: OU-1 and OU-2. OU-1 is an upland area approximately 2,400 feet long by 500 feet wide. OU-2 is the area that extends westward into the Hudson River approximately 400 feet from the western OU-1 boundary, north into the Old Marina (approximately 300 feet north of the northwestern corner of OU-1), and approximately parallel to the southern property boundary. Bulkhead walls used to construct the site (as described in Section 1.1) establish the boundaries of OU-1 and some elements of the off-shore portion of the Site (OU-2). While Building 52 is located within OU-1, the OU-1 ROD does not include activities associated with Building 52 including demolition and subsurface investigation beneath the slab.

1.2.1 Record of Decision

Based on Historical investigations, NYSDEC issued a Record of Decision (ROD) (March 2004) and a ROD Amendment (March 2012) to address onshore (OU-1), site wide impacts. The ROD and ROD Amendment requires Site-wide excavation of onshore soils containing PCBs greater than 10 PPM, to a maximum depth of 9 to 12 feet and a two-foot cover on the site. PCB releases occurred at the site prior to 1978; therefore, remediation of PCBs at “as found” concentrations less than 50 PPM are regulated by NYSDEC.

1.2.2 Consent Order

In November, 2013, NYSDEC and AR and AERL entered an Amended Order on Consent with NYSDEC which requires design and implementation of the environmental remedy to address PCBs and lead.

1.3 REMEDIAL DESIGN WORK PLAN

A Remedial Design Work Plan (RDWP) was completed and submitted to NYSDEC and was approved on 16 June 2014. The RDWP described a Pre-Design Investigation (PDI), which began in 2013, that included collecting information and soil and sediment samples required to support completion of a remedial design to address OU-1 and OU-2. One component of a ROD compliant remedy includes submittal of a TSCA Risk Based Disposal application in accordance with 40 CFR 761.61 (c), which was submitted to the USEPA in November 2015.

1.4 PLANNED ACTIVITIES FOR BUILDING 52

Building 52 is located in the northeast corner of the site (see Figure 2 in Appendix B). Limited subsurface data collected adjacent to and under Building 52 indicate the presence of PCBs greater than ROD cleanup concentrations. The physical condition of Building 52 is poor and subsurface investigations and subsequent removal of impacted soils cannot be safely completed with the building in place. Building 52 will be demolished in order to complete the subsurface investigation adjacent to and beneath the slab to finalize the design of the remedy in this portion of the Site.

1.4.1 Materials Sampling Plan

Building 52 is an approximate 2 acre building constructed of a concrete slab, steel columns with brick infill, steel truss roof, with light weight concrete roof deck and saw tooth monitors. PCBs have been observed in building materials such as the concrete floor, brick walls, roof deck, paint, and window caulk and glaze. Initial sampling completed in 2006 and 2009 indicated the presence of PCBs in the concrete floor slab at concentrations greater than 50 PPM. Based on this, the Building 52 Sampling and Analysis Work Plan (2015 SAP) was developed and submitted to the NYSDEC in September 2015 for review and approval (see Appendix A). The objective of the sampling plan was to

- Determine the concentration of PCBs, TCLP lead and asbestos in building materials to evaluate proper handling and disposal requirements
- Delineate existing areas and identify new areas of the floor slab that contain concentrations of PCBs greater than 50 PPM.

Drawings that indicated historical equipment layouts were used to locate borings for the purposes of determining additional areas on the floor and brick walls that may contain concentrations of PCBs greater than 50 PPM.

2. Building 52

Building 52 is currently a vacant, former industrial building located within the northeast corner of OU-1. This building is one of several factory buildings that once operated on the 28-acre Anaconda complex. All buildings in OU-1 except Building 52 have since been removed.

2.1 HISTORICAL USE

Below is an approximate overview of the history of use of Building 52. Additional information regarding the historical use of Building 52 can be reviewed in the Building 52 Alternatives report (Haley & Aldrich, 2014).

- 1911: Building 52 was constructed.
- Pre-1915 – 1920: Copper and brass components for munitions to support World War I efforts were manufactured.
- 1920 – 1942: Building was used as auto dead storage (where automobiles or parts are stored for an indefinite length of time).
- 1942 – 1945: Fire-resistant electrical cable was manufactured under a US Navy contract.
- 1945 – 1970s: Telephone wire was manufactured.
- 1974: Operations at the Hastings-On-Hudson Plant ceased.
- 1978: Site acquired by AR in 1978 through the purchase of copper mining assets from the Anaconda Company.

2.2 BUILDING DESCRIPTION AND DISPOSITION

Building 52 is a one-story building approximately 576 feet in length in the north-south direction and 170 feet in width in the east-west direction. Based on a review of Historical building drawings, the building consists of a concrete slab floor underlain by wood piles.

The roof is supported by steel columns, which extend along the perimeter of the building on 16 foot centers within the east and west walls and on 17 foot centers in the north and south walls. A center row of columns, which provides roof support to steel trusses that extend east-west, is oriented north-south and are on 48 foot centers. The trusses support smaller steel infill beams, which support a cinder concrete roof slab. The exterior walls are masonry and do not appear to be load bearing.

Deterioration of building elements, (e.g., sawtooth roof monitors, brick pilasters, and the roofing system) has been observed and their condition continues to worsen. The roof membrane has significantly deteriorated over the past several years resulting in exposure of large sections of the concrete roof deck to solar radiation, precipitation, and freeze-thaw cycles further reducing structural integrity. Additional information regarding the physical condition of Building 52 can be reviewed in the Building 52 Alternatives report (Haley & Aldrich, 2014).

2.3 PCB USAGE IN CABLE MANUFACTURING INSIDE BUILDING 52

Building 52 was used to manufacture PCB cables from 1942 to 1945. Components required to produce electrical cables were generally delivered by barge to the northwest portion of the site. Components of the PCB mixture used to manufacture electrical cable at the site and within Building 52 were delivered in the form of Aroclors (delivered as a powder) and Halowax (delivered as a wax) compounds.

The product required for use in electrical cables was produced by mixing components, which resulted in a thick mixture (referred to as the "saturant"). Naphtha or toluene solvent was added to decrease the viscosity to allow placement of the saturant into transfer drums and trucks, pumping through piping, and into machinery to produce cables. Mixed saturant was then transferred to Building 52 for use in the manufacture of electrical cable. Once inside Building 52, saturant was delivered to production machines using an overhead piping network. Records are not available that describe whether overhead pipes were cleaned or removed.

Saturant was mixed in Building 55 and either stored temporarily until required or transferred directly to Building 52. Once inside Building 52, saturant was delivered to electrical cable components as required to meet the design specifications of the cable. Equipment used for this purpose is described below:

- Bull, intermediate, and fine wire felters – used to apply saturant impregnated asbestos to conductors and cables;
- Wire planetary stranders – used to apply saturant impregnated fillers to conductors and cables;
- Vertical and horizontal cabling machine – used to apply pre-saturated filler material to conductors and cables;
- Drying Ovens – used to evaporate solvents from saturated insulation;
- Braiders (wardwell and textile) – used to apply saturant to the braid of the conductor; and
- Royle Tubers – used to extrude rubber or plastic into tubes used as covers on conductors and cables insulation containing saturant.

All manufacturing processes described above ceased upon completion of World War II.

2.4 PLANNED DEMOLITION

The purpose of demolition of Building 52 is to provide safe access to environmental contractors completing subsurface investigation to comply with NYDEC and TSCA regulations through removal of soil removal beneath and adjacent to the building that exceeds ROD removal requirements.

The current demolition strategy is to remove and properly dispose of the above grade structure. As an Interim Response Measure (IRM), portions of the slab that contain PCBs greater than 50 PPM will be removed prior to demolition to prevent releases to the environment during the demolition process. Portions of slab that do not contain PCBs at concentrations greater than 50 PPM will remain in place post demolition. Upon completion of the demolition, in accordance with the ROD, portions of the slab that contain PCBs greater than 10 PPM will be delineated and if needed; removed as part of the site remedy.

3. Materials Sampling

3.1 REGULATORY CONTEXT

In order to properly dispose of waste streams resulting from demolition activities, the 2015 SAP was completed and submitted to NYSDEC in September 2015 and approved on November 10, 2015. The 2015 SAP indicated the locations and frequency at which representative samples of building materials would be collected and analyzed to determine the presence of constituents of interest (COIs). COIs for Building 52 include PCBs, TCLP lead, lead, and asbestos containing material (ACM). Based on this, regulations described below were evaluated and were determine to apply.

3.1.1 Environmental Protection Agency

PCB Remediation Waste

As described previously, PCB use in manufacture of electrical wires within Building 52 occurred during World War II. Therefore, as described in §761.3, as it relates to Building 52, PCB remediation waste means a "waste containing PCBs as a result of a spill, release, or other unauthorized disposal, at the following concentrations: Materials disposed of prior to April 18, 1978, that are currently at concentrations ≥50 ppm PCBs, regardless of the concentration of the original spill…"

As described in §761.60(b)(2)(i), for wastes that fulfill the description of a PCB remediation waste, "Any person disposing of non-liquid PCB remediation waste shall do so by one of the following methods: Dispose of it in a high temperature incinerator approved under §761.70(b), an alternate disposal method approved under §761.60(e), a chemical waste landfill approved under §761.75, or in a facility with a coordinated approval issued under §761.77…"

Materials within Building 52 that contain PCBs that fulfill the description of PCB remediation waste include sections of the concrete floor slab, brick walls, and concrete roof deck.

PCB Bulk Product Waste

As described in § 761.3, as it relates to Building 52, PCB bulk product waste means waste derived from manufactured products containing PCBs in a non-liquid state, at any concentration where the concentration at the time of designation for disposal was ≥50 ppm PCBs. PCB bulk product waste does not include PCBs or PCB Items regulated for disposal under §761.60(a) through (c), §761.61, §761.63, or §761.64. PCB bulk product waste includes, but is not limited to:

"…. Plastics (such as plastic insulation from wire or cable; radio, television and computer casings; vehicle parts; or furniture laminates); preformed or molded rubber parts and components; applied dried paints, varnishes, waxes or other similar coatings or sealants; caulking; adhesives; paper; Galbestos; sound deadening or other types of insulation; and felt or fabric products such as gaskets."

As described in 761.62, for wastes that fulfill the description of a PCB bulk product waste, "Any person may dispose of….PCB bulk product waste in a facility permitted, licensed, or registered by a State as a municipal or non-municipal non-hazardous waste landfill."

Materials within Building 52 that contain PCBs that fulfill the description of PCB bulk product waste include paint, window caulk and glaze, expansion joint caulk, and ceiling coating.

<u>Post April 18, 1978 Releases of PCBs</u>

According to 761.50 (b)(3)(1)(B), wastes released to the environment prior to April 18, 1978 at “as-found” concentrations ≥50 ppm are not required to be cleaned up in accordance with § 761.61. However, if cleanup is not in accordance with § 761.61, the responsible party is not relieved from the applicable requirements of the cleanup.

In a demolition scenario, debris that contains PCBs greater than 50 PPM released to the environment may constitute a release subject to the regulations and would require clean up in accordance with § 761.61. Activities that may result in a release to the environment include comingling demolition debris containing PCB remediation waste with debris that contains concentrations of PCBs less than 50 PPM. Releases of this nature would necessitate all waste that contacts PCB remediation waste to be disposed of as a PCB remediation waste.

Building 52 materials sampling was designed and conducted to acquire appropriate data to complete a demolition design that reduces the potential that PCB remediation waste comingles with waste containing PCBs less than 50 PPM.

3.1.2 New York State Department of Environmental Conservation

In New York State, lead and PCBs are regulated for transportation and disposal by 6 CRR-NY 372 as described below. Hazardous waste must be transported and disposed of in New York using hazardous waste manifest using waste codes described in 6 CRR-NY 371. Definitions of hazardous waste thresholds for COIs within Building 52 are described below. NYDEC requirements are in addition to TSCA (40 CFR 761) as EPA has not delegated TSCA authority to state agencies.

<u>PCBs</u>

According to 6 NYCRR 371.4 (e)(1), “All solid wastes containing 50 parts per million (ppm) by weight (on a dry weight basis for other than liquid wastes) or greater of polychlorinated biphenyls (PCBs) are listed hazardous wastes, excluding small capacitors as defined in paragraph (3) of this subdivision and PCB articles drained in accordance with subparagraphs (2)(ii) and (iii) of this subdivision. PCB articles that contain less than 50 ppm PCBs are not regulated as hazardous waste.”

Materials within Building 52 that contain PCBs that fulfill the description of a NYS hazardous waste include the concrete floor slab, brick walls, concrete roof deck, paint, window caulk and glaze, expansion joint caulk, and ceiling coating.

<u>Lead</u>

NYS Hazardous waste rules for TCLP lead match Federal regulations, which indicate that solid waste containing 5 PPM TCLP lead must be managed as a hazardous waste.

Materials within Building 52 that contain TCLP lead that fulfill the description of a NYS hazardous waste include the portions of brick walls, paint, window caulk and glaze, and expansion joint caulk.

3.1.3 New York State Department of Labor

ACM

Asbestos containing material (ACM) is regulated by the New York State Department of Labor (NYSDOL) through 12 NYCRR Part 56.

3.2 PURPOSE OF SAMPLING

As described in Section 3.1 of this document, demolition of Building 52 may impact portions of the concrete floor slab containing PCBs at concentrations greater than 50 PPM potentially resulting in a new release to the environment. Additionally, building materials, including brick walls and concrete roof deck, may contain hazardous levels of COIs that may require special considerations for demolition and disposal. Therefore, the purpose of materials sampling within Building 52 was to identify materials that contain site specific COIs which require special consideration during demolition or disposal activities based on the regulatory context that governs wastes generated as a result of demolition activities. A sampling plan was developed based on historical building materials sampling and the equipment layout during the period of time at which PCBs were used in the manufacturing process. The sampling plan was approved by the NYSDEC on November 10, 2015. Data collected was used to evaluate potential off-site disposal options and required demolition sequencing and methods. Sampling was conducted to determine the following:

- the presence of hazardous levels of lead;
- the presence of asbestos containing material (ACM);
- locations where building materials (such as expansion joints and window caulk and glaze) that contain PCB concentrations greater than 50 PPM (bulk product waste); and
- locations where masonry material that contains PCB concentrations greater than 50 PPM (PCB remediation waste) which require removal prior to demolition.

Appendix B Figures 3, 4, 5, and 6 show historical sampling locations (collected between 2006 and 2009) and analytical results of PCBs, total lead, TCLP lead, and asbestos contained within building materials. These results were supplemented to determine the extent of impacts by COIs.

Appendix B Table I shows building components and the approximate number of samples that were proposed to be sampled in the 2015 SAP to determine the presence of PCBs, TCLP lead, total lead, and asbestos. Although the sampling generally followed the SAP approved by NYSDEC; the actual number, locations, and types of samples collected were determined based on field conditions and laboratory sample results. Details of sampling are provided in sections that follow.

4. Sampling Overview

Sampling of building materials was completed to evaluate disposal options for waste streams resulting from demolition. Sampling, for the purposes of disposal, was completed, at a minimum, at the frequency (1 sample per 500 cubic yards) and distribution (based on historical processes) required to identify and characterize materials for disposal. Paint chips or other coatings were collected and analyzed to determine TCLP lead and PCB concentrations; samples of other building materials were collected to determine the presence of ACM.

Additionally, the concrete slab was sampled to evaluate areas that contain concentrations of PCBs greater than 50 PPM, which require removal as an IRM. The remaining portion of the slab will remain in place post demolition. Sampling was biased to historical equipment locations based on equipment layouts during wire manufacturing. All sampling was completed in accordance with procedures described in the 2015 SAP. Sampling to determine the concentration of PCBs were collected in accordance with §761.286.

As described in the 2015 SAP, the following materials were sampled to determine the concentration of PCB, TCLP lead, and asbestos to determine appropriate disposal, segregation, and construction sequencing requirements:

- Floor Slab
- Masonry
  - Wall Paint and Brick, and concrete masonry unit (Walls)
  - Ceiling Coating and Concrete Roof Deck
- Other Building Materials
  - Interior Steel
  - Expansion Joints
  - Roofing Material
  - Window Caulk and Glaze
  - Sumps and Drains
  - Overhead piping

4.1 HISTORICAL AND CURRENT PCB SAMPLING

This section summarizes the historical analytical results of building materials and describes the rationale for additional sampling proposed in the 2015 SAP.

As shown in Appendix B Figures 3, 4, 5, and 6, sampling completed in 2006 and 2009 indicated the potential presence of PCBs in building materials, which are described below. Data indicating field sampling methods for floor slabs in 2006 are not available for review. Methods to collect samples from walls in 2009 included using a masonry chisel to remove portions of the walls; sampling methods to collect samples of the concrete floor and roof deck included use of a two-inch concrete core bit. Based on results of historical sampling, the 2015 SAP indicated additional sampling was warranted.
Samples collected in 2015 and 2016 that required analysis of PCBs were analyzed (as Aroclors) by Pace Analytical Laboratories (Pace) in Schenectady, New York. Analyses were completed using USEPA SW846 Method 8082A by gas chromatography/electron capture detection (GC/ECD).

Details of the historical sampling and the additional sampling collected in 2015 and 2016 are described in the sections below and results of the historical and recent sampling are summarized in Section 5 of this report.

4.1.1 Floor Slab (PCBs)

In 2006, composite floor samples were collected from 15 locations and analysis indicated a maximum concentration of 12.7 PPM (Appendix B Figure 6). In 2009, 10 concrete core screening locations were evaluated at 0.5 to 1 inch intervals beginning at the finished floor to the bottom of the slab from unbiased locations using a 2 in. diameter core. The purpose of this sampling was to determine whether the PCBs were present within the slab at concentrations that required removal. PCBs greater than 50 PPM were observed in the floor slab at two locations at concentrations of up to 94 ppm in the top one inch of concrete (Appendix B Figure 5).

4.1.1.1 Cleanup Site Characterization Sampling

Based on these results and information regarding historical equipment layouts during PCB use, biased sampling was completed as described in the 2015 SAP (proposed sampling locations shown Appendix B Figure 7). Sampling was completed based on requirements described in §761.265 to determine the horizontal extent of PCB greater than 50 PPM in concrete. The purpose of this delineation was to identify areas subject to an IRM.

4.1.1.2 Sampling to Verify Completion

The most likely source of PCBs in concrete is surface spills during operations. The requirements of §761.280 indicate that verification of cleanup is required by collecting confirmation samples at the bottom of the removal area. The concrete slab IRM will include removal of the areas of the slab that exhibit PCB concentrations greater than 50 PPM in the top 3 inches and backfilling. In order to verify remediation (i.e. confirm that PCBs did not migrate to the bottom of the slab at concentrations greater than 50 PPM), samples of the bottom 1 in. of the concrete slab were collected at select locations that coincided with “top 3 in. samples” and analyzed to determine the concentration of PCBs. The purpose of this sampling was to determine whether PCBs released to the floor surface migrated through the concrete into underlying soil. The concrete slab was (and is currently) competent at the time of the historical release. Based on the typical physical properties of concrete (i.e. low porosity and hydraulic conductivity as compared to soil), the largest concentrations of PCBs are expected to be observed only in the top several inches of the concrete with little vertical migration within the concrete matrix, which was confirmed by results of concrete sampling completed in 2009 (Appendix B Figure 5). The samples did not indicate significant concentration of PCBs in the bottom 1 in. of the slab.

4.1.2 Masonry (PCBs)

Screening samples were collected from building materials consisting of masonry material (i.e., brick and concrete masonry unit (CMU) from walls, concrete from the roof deck) to evaluate disposal requirements. Historical sampling of wall brick, CMU and roof deck concrete were collected to determine building materials that contain concentrations of PCBs that require removal prior to demolition (PCBs greater than 50 PPM) to reduce the potential for comingling PCB remediation waste with wastes that contain PCBs at concentrations less than 50 PPM. Based on these results of historical masonry materials sampling (described below), additional sampling was completed as described in the

2015 SAP (proposed sampling locations shown Appendix B Figure 7). If screening samples indicated concentrations greater than 50 PPM, additional samples were collected as described in §761.265 to determine the extent of PCB remediation waste in masonry material.

Additionally, paint is present on the walls and a coating is present on the ceiling. Historical sampling of these materials was not conducted. Sampling of these materials was completed as described in the 2015 SAP.

4.1.3 Brick and CMU (Walls) Including Paint

Historical screening samples from interior brick walls were previously collected at approximately 15 locations to determine concentrations PCBs. These samples were generally collected at a height of approximately four feet above the finished floor. At three locations, additional brick samples were collected upon washing the wall surface and then removing paint at locations adjacent to the initial sampling location and evaluated for concentrations of PCBs and total lead; historical paint samples were not collected. PCBs were detected at these locations prior to washing and removal of paint at concentrations that ranged between 0.069 and 2.1 PPM (Appendix B Figure 4).

As was described in the 2015 SAP, additional samples of wall brick and concrete block were collected. Additionally, wall paint samples were collected. Wall samples were generally collected at approximately: 0.5 ft., 4 ft., 11 ft., and 22 ft. above the finished floor (AFF); most brick samples were collected at locations that contained paint.

Historical samples of CMU present in openings previously occupied by windows and overhead doors and the wall at the midpoint of the building, which were likely infilled post World War II and are generally unpainted, were not collected, since the presence of PCB remediation waste is unlikely. Therefore, four samples were collected from the interior CMU wall in the middle of the building and six samples were collected from CMU locations previously occupied by windows and overhead doors.

4.1.4 Concrete Roof Deck Including Ceiling Coating

In 2010, wipe samples were previously collected at 14 locations from the ceiling (defined as the underside of the roof deck) to determine the presence of PCBs; detections of PCBs were observed at each of the 14 wipe locations. In addition, historical roof cores were collected at three locations and analyzed for the presence of PCBs; PCB detections ranged between 0.58 and 1.2 PPM. Appendix B Figure 4 shows results of PCB samples collected from the roof and ceiling. Historical samples of ceiling coating were not collected.

As was described in the 2015 SAP, an additional eight samples of the concrete roof deck were collected. Based on historical operations, a source that may result in PCBs present on the ceiling at concentrations that exceed 50 PPM was not identified. Therefore, the roof was divided into eight equal sections; one sample of the underside of the roof deck was collected from the center of each section to determine PCB concentrations. Additionally, ceiling coating samples were collected to determine the presence of PCBs.

4.1.6 Other Building Materials (PCBs)

Historically (i.e. 2009, 2010, and 2011), samples were collected from other building materials, such as roof membrane, flashing, window glaze and caulking, to determine concentrations of PCBs, lead, and asbestos. The results of these evaluations are shown in Appendix B Figure 4. Based on historical results, additional samples of these materials were collected to determine the presence of PCBs as described below.

Interior Steel

Interior steel (columns and roof trusses) is coated with paint. Historical sampling was not conducted. Therefore, the 2015 SAP indicated sampling of each of these materials to determine whether PCBs are present at concentrations that exceed 50 PPM.

Expansion Joints

Expansion joints are located in the concrete floor slab; expansion joints have not been observed in the walls or ceiling. Historical samples indicated PCBs are present at up to 984 PPM at two locations. Based on these data, additional samples were collected from each identified expansion joint to determine whether PCBs are present at concentrations that exceed 50 PPM.

Roofing Material

Two historical roof membrane samples were collected to determine the presence of PCBs; PCBs were not observed. Based on historical operations, a source that may result in PCBs present at concentrations that exceed 50 PPM was not identified. Therefore, the roof was divided into eight equal sections; one sample of the roofing membrane was collected from the center of each section to determine PCB concentrations.

Window Caulk and Glaze

Two window caulk and two glaze samples were collected from a roof monitor in 2009 and indicated the presence of PCBs in one glaze sample at a concentration of 14.1 PPM (Appendix B Figure 5). There are additional windows on the west, north, and east facades of the building. Historical caulk and glaze samples were collected from these windows. Based on this preliminary screening; additional caulking and glazing samples were collected to determine the concentration of PCBs. Therefore, the 2015 SAP indicated that caulking and glazing samples associated with two rows of windows on the building walls would be sampled at an approximate frequency of one sample per 50 feet and analyzed to determine the concentration of PCBs. Additionally, caulk and glaze samples were collected from the roof monitors and analyzed to determine the presence of PCBs.

Sumps

Approximately 15 sumps are present within the building. Each sump was identified, attempted to be accessed, and inspected. If debris or sludge was identified in the sumps, samples were collected to determine concentration of PCBs.

Overhead piping

Overhead piping, potentially used within former processes was identified. Piping that was likely associated with potable water, electric, and gas were identified and appropriately marked. Remaining pipes were accessed to determine contents and samples collected as required to determine concentration of PCBs.

4.2 HISTORICAL AND CURRENT LEAD SAMPLING

This section summarizes the historical analytical results of building materials and describes the rationale for additional sampling proposed in the 2015 SAP

As shown in Appendix B Figures 3, 4, and 5, sampling completed in 2009 indicated the potential presence of TCLP lead in building materials, which are described below. Methods to collect samples from walls in 2009 included using a masonry chisel to remove portions of the walls; sampling methods to collect samples of the concrete floor and roof deck included use of a two-inch concrete core bit. Based on results of historical sampling, the 2015 SAP indicated additional sampling was warranted. Total lead was analyzed for brick walls, CMU, and roof deck samples to determine whether masonry material could be stockpiled on site and used for future backfill material or would require disposal.

Total lead samples were collected and transported to Pace for analysis using USEPA SW846 Method 6010C by GC/ECD. TCLP lead samples were collected and analyzed by Pace by TCLP 1311.

4.2.1 Floor Slab (TCLP lead)

During historical sampling, approximately 54 concrete floor slab samples were collected from 10 locations at 0.5 to 1 in. depth intervals and analyzed to determine the concentration of TCLP lead (shown in Appendix B Figure 5). TCLP lead results of concrete core samples at each location were significantly less than 5 PPM. Additional samples were collected in 2015 to determine TCLP lead concentrations in the concrete floor slab; total lead samples were collected at select locations.

4.2.2 Masonry (TCLP and Total Lead)

Building materials consisting of masonry material (i.e., brick and CMU from walls, concrete from the roof deck) were evaluated to determine disposal requirements. Samples of wall brick, CMU and roof deck concrete were collected to determine building materials that contain concentrations of TCLP lead that require disposal as a NYS hazardous waste. Based on these results of historical sampling of masonry materials (described below), additional samples were collected as described in the 2015 SAP (proposed sampling locations shown Appendix B Figure 7).

Wall Paint and Brick, and CMU (Walls)

Screening samples from interior brick walls were previously collected at approximately 15 locations to determine concentrations TCLP lead. These samples were generally collected at a height of approximately four feet above the finished floor. At three locations, additional samples were collected following washing the wall surface and then removing paint at locations adjacent to the initial sampling location and analyzed for concentrations of total lead. TCLP lead concentrations exceeded 5 PPM at four locations. Based on these exceedances, additional samples were collected as described in the 2015 SAP to determine building materials that contain concentrations of TCLP lead greater than 5 PPM for the purposes of determining whether special handling during demolition is required. Additionally, total lead samples were collected

Historical samples of CMU present in openings previously occupied by windows and overhead doors and the wall at the midpoint of the building, which were likely infilled post World War II and are generally unpainted, were not collected. Based on this, the presence of TCLP lead at concentrations that exceed hazardous thresholds is unlikely. Therefore, four samples were collected from the interior CMU wall in the middle of the building and six samples were collected from CMU locations previously occupied by windows and overhead doors.

Ceiling Coating and Concrete Roof Deck

Historical roof cores were collected from the ceiling (defined as the underside of the roof deck) at three locations and analyzed for the presence of TCLP lead; TCLP lead was not detected. Based on historical operations, a source that may result in TCLP lead present at concentrations that exceed 5 PPM was not identified.

As was described in the 2015 SAP, an additional eight samples of the concrete roof deck were collected. Based on historical operations, a source that may result in TCLP lead present on the ceiling at concentrations that exceed 5 PPM was not identified. Therefore, the roof was divided into eight equal sections; one sample of the underside of the roof deck was collected from the center of each section to determine TCLP lead concentrations. Additionally, ceiling coating samples were collected to determine the presence of TCLP lead.

4.2.3 Other Building Materials

Interior Steel

Interior steel (columns and roof trusses) is coated with paint. Historical sampling was not conducted. Therefore, the 2015 SAP indicated sampling of each of these materials to determine whether TCLP lead is present at concentrations that exceed 5 PPM.

Expansion Joints

Expansion joints are located in the concrete floor slab; expansion joints have not been observed in the walls or ceiling. Historical samples indicated TCLP lead at approximately 2.3 PPM at two locations. Based on this, samples were collected from select identified expansion joints to determine proper disposal requirements.

Window Caulk and Glaze

Two window caulk and two glaze samples were collected from a roof monitor in 2009 and indicated the presence of TCLP lead at concentrations of up to 50.4 PPM. Based on this result, additional caulk and glaze samples were collected from windows within the roof monitors and exterior walls to determine concentration of TCLP lead.

Sumps

Approximately 15 sumps are present within the building. Each sump was identified, attempted to be accessed, and inspected. If debris or sludge was identified in the sumps, samples were collected to determine concentration of TCLP lead.

Overhead piping

Overhead piping, potentially used within former processes was identified. Piping that was likely associated with potable water, electric, and gas were identified and appropriately marked. Remaining pipes were accessed to determine contents and samples collected as required to determine concentration of residual material containing TCLP lead.

4.3 HISTORICAL AND CURRENT ASBESTOS SAMPLING

Historical ACM samples were collected from roof membrane and flashing, roof monitor window caulk and glaze, wall window caulk and glaze, and floor expansion joint material. Results indicated the presence of ACM in roof flashing, monitor window caulk. ACM was not detected in the roof membrane, floor expansion joint caulk, or window glaze. Based on this information, additional ACM samples were collected of the roof membrane and window caulk and glaze to determine the limits of ACM. Additional materials that may contain ACM were sampled as they were identified. All sampling was conducted by Paradigm Environmental Services, Inc. by a certified asbestos inspector.

Asbestos sample analyses were conducted using Polarized Light Microscopy with dispersion staining (PLM-DS) in accordance with the New York State ELAP 198.1 Method. Transmission Electron Microscopy (TEM) analysis was performed to address New York State Department of Health (NYSDOH) ELAP requirements, which require re-analysis of non-friable, organically bound (NOB) samples with asbestos reported as non-detected (ELAP Method 198.4).

4.4 BUILDING DECOMMISSIONING ASSESSMENT

A Building Decommissioning Assessment (BDA) was performed in 2015 to identify additional materials that will require special handing by a contractor prior to demolition.

5. Results, Interpretation, and Disposal Strategy

Based on the results of the historical sampling and evaluation of operations within Building 52 during wire manufacturing operations; additional sampling was identified in the 2015 SAP. The building slab and superstructure were further evaluated to determine the concentration of PCB, TCLP lead, and asbestos to determine appropriate disposal, segregation, and construction sequencing requirements:

- Floor Slab
- Masonry
  - Wall Paint and Brick and CMU (Walls)
  - Ceiling Coating and Concrete Roof Deck
- Other Building Materials
  - Interior Steel
  - Expansion Joints
  - Roofing Material
  - Window Caulk and Glaze
  - Sumps and Drains
  - Overhead piping

More than 800 samples, including historical building material samples, were analyzed to evaluate the disposition of Building 52. Approximately 733 total samples (which includes 67 ACM samples, 52 field duplicates, 39 equipment blanks, and 43 MS/MSDs) were collected and analyzed between December 2015 and April 2016 to evaluate potential demolition and disposal requirements for debris resulting from the demolition of Building 52.

Below is a summary of results, interpretation of data, and proposed demolition and disposal scenarios of building materials resulting from demolition of Building 52.

5.1 FLOOR SLAB

As described above, historical concrete samples indicated the presence of PCBs greater than 50 PPM in the top 1 to 2 in. at two locations (as shown in Appendix B Figure 5). Based on these data, additional sampling was completed in 2015 and 2016 to evaluate the presence and delineate the extent of PCBs greater than 50 PPM for the purposes of completing an IRM removal prior to demolition of Building 52. Details of sampling results, interpretation of the data, the proposed, and transport and disposal of resulting waste are described in the sections below.

5.1.1 Results

<u>PCBs</u>

In December 2015, 21 floor slab investigation locations were completed based on historical sampling results and likely wire manufacturing equipment locations as described in the 2015 SAP. As is indicated in the 2015 SAP, select sampling locations were modified based on field conditions. Two additional sampling locations were added based on initial sampling results (FLR-CON-41) and the presence of a less than 90 days, hazardous waste storage area (FLR-CON-39), which is used to store hazardous waste generated by all site activities including the PDI and the IRM DNAPL recovery prior to proper shipment

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and disposal at an off-site facility. The concentration of PCBs in concrete within the hazardous waste storage area is less than 50 PPM indicating that current management of this area has not resulted in a release of PCBs.

Based on the results of concrete slab sampling, six locations exhibited concentrations of PCBs that exceeded 50 PPM and required further delineation as described below. All samples were collected in accordance with §761.286.

- FLR-CON-21 (originally completed in 2009; resampled in 2015) (Concrete Area A)
- FLR-CON-26 (originally completed in 2009; resampled in 2015) (Concrete Area B)
- FLR-CON-15 (Concrete Area C)
- FLR-CON-16 (Concrete Area D)
- FLR-CON-2 (Concrete Area E)
- FLR-CON-4 (Concrete Area F)

Once areas that contain PCBs greater than 50 PPM were identified, the horizontal extents were delineated based on requirements in §761.260 and §761.265 and the 2015 SAP. Initially, samples were collected on a grid interval of 1.5 meters to reduce the volume of concrete that required removal during the IRM. The extent of PCB remediation waste was able to be determined within several of the areas using this approach (Concrete Areas A, B, C and F). However, two areas were sufficiently large that the maximum allowable grid interval of 3 meters to characterize the cleanup area was used (concrete Areas D and E). A total of approximately 140 samples were collected and analyzed to complete delineation of areas that contain PCB remediation waste.

Once the horizontal extents of PCBs greater than 50 PPM were determined, sampling of the bottom 1 in. of concrete was completed in select locations. The requirements of §761.283 indicate the required spacing to verify cleanup is a grid interval of 1.5 meters. However, as described in Section 4.1.1.1.2 of this document, based on the limited ability of PCBs to migrate vertically or horizontally through concrete, sampling to confirm the vertical extent of remediation was conducted by collecting a concrete sample from the bottom 1 in. of the slab at 38 locations. Bottom sampling locations corresponded with concentrations of the top 3 in. that ranged between 53.3 to 23,100 PPM PCBs; 20 of the 38 bottom samples were collected at locations that corresponded with top 3 in. concentrations greater than 1,000 PPM PCBs. Three locations contained PCBs greater than 50 PPM in the bottom 1 in. The top and bottom results of these three sample groups are summarized below.

Sampling location	PCB Remediation Waste Area	Top 3 in. Result (PPM)	Corresponding Bot. 1 in. Result (PPM)
FLR-CON-204	E	1,170	107
FLR-CON-418	E	569	160
FLR-CON-225	D	14,400	135

Results of PCB concrete slab sampling are shown on Figures C.1 through C.3 and in Table C.1 and C.2.

<u>Lead</u>

Approximately 30 samples were collected to determine TCLP and total lead concentrations. The maximum concentration of TCLP lead and total lead was 0.18 PPM and 34.6 PPM, respectively. Therefore, TCLP lead concentrations are below the hazardous waste threshold; there are no federal or state disposal thresholds based on the concentration of total lead.

Results of TCLP lead concrete slab sampling are shown on Figure D.1 and in Table D.1. Results of total lead concrete slab sampling are shown on Figure E.1 and in Table E.1.

5.1.2 Interpretation and IRM

Based on the results of the sampling program, an IRM removal is required to reduce the potential of new releases to the environment during demolition activities. Six areas of the concrete will be removed prior to beginning building demolition based on sampling results described above. Removal areas are shown in Figure C.8 and a summary of actions resulting from sampling is provided in the table below.

Concrete Floor Locations	No. of top 3 in. Sampling Locations	No. of bottom sample locations	Total IRM Removal (SF)
Area A	12	0	50
Area B	9	0	25
Area C	14	2	125
Area D	74	27	3760
Area E	29	9	830
Area G	1	0	25
Total	**139**	**38**	**4815**

PCB remediation waste resulting from the IRM will be disposed in accordance with §761.61(a)(5)(B)(2)(iii) at Chemical Waste Management (CWM) Emelle, operated by Waste Management located in Emelle, Alabama or an alternate landfill permitted to accept PCB Remediation Waste. Upon completion of concrete removal activities, the areas will be backfilled with gravel, and covered with steel plates, or backfilled with asphalt or similar. Portions of the slab that do not require an IRM will remain in place. Due to the presence of PCBs in concrete greater than 10 PPM, additional delineation and removal of these areas may be required in the future to comply with future site (OU-1) remediation requirements set forth in the ROD.

As shown in the table below, sampling locations FLR-CON-318 and FLR-CON-317 (Area E) and FLR-CON-301, FLR-CON-305, FLR-CON-113, and FLR-CON-312 (Area D) are proximate to bottom 1 in. sampling locations that indicate results greater than 50 PPM. With one exception (FLR-CON-301 at 40.6 PPM), the bottom 1 in. results of proximate locations are much less than 1 PPM and exhibit similarly high PCB concentrations in the top 3 in.

PCB Remediation Waste Area[1]	Sampling location	Top 3 in./ bot. 1 in. Result (PPM)	Sampling location	Top 3 in./ bot. 1 in. Result (PPM)
E	FLR-CON-204	1,170/107	FLR-CON-318 (located 5 ft. from FLR-CON-204)	23,100/0.371
E	FLR-CON-418	569/160	FLR-CON-317 (located 10 ft. from FLR-CON-418)	426/0.0741
D	FLR-CON-225	14,400/135	FLR-CON-301 (located 5 ft. from FLR-CON-225)	4,950/40.6
			FLR-CON-305 (located 5 ft. from FLR-CON-225)	2,560/0.195
			FLR-CON-113 (located 5 ft. from FLR-CON-225)	3,386/0.139
			FLR-CON-312 (located 5 ft. from FLR-CON-225)	95.8/0.0251

[1]See Figure C.8

Based on data of bottom 1 in. sampling results that exceeded 50 PPM as compared to proximate bottom 1 in. sampling locations with results less than 50 PPM, the bottom sampling at locations that exceed 50 PPM will be resampled during slab removal. Once portions of the slab that coincides with bottom 1 in. samples that exhibited concentrations of PCBs greater than 50 PPM are removed, the concrete slab will be turned over and a 1 in. sample collected and analyzed to determine the presence of PCB in the bottom portion of the concrete. If PCBs greater than 10 PPM are not observed (ROD requires removal of material greater than 10 PPM), then the vertical distribution of PCBs at this location has been established and additional sampling is not required. If PCBs greater than 10 PPM are observed, then the vertical distribution of PCBs at this location has not been established and soil sampling will be completed post demolition.

5.1.3 Demolition Approach and Disposal Strategy (Floor Slab)

Based on these results, the floor slab will be managed in the following way:

- Based on historical and current sampling, TCLP lead is not present at concentrations greater than 5 PPM and that will result in a waste stream that exhibits hazardous characteristic.
- Portions of floor slab containing PCB concentrations greater than 50 PPM will be removed prior to demolition and managed as a NYS hazardous and TSCA waste and disposed of as a hazardous waste at CWM Emelle, operated by Waste Management located in Emelle, Alabama or an alternate landfill permitted to accept PCB Remediation Waste.

- Upon removal of the concrete slab at locations FLR-CON-204, FLR-CON-418, and FLR-CON-225, the resulting slab will be turned over and a 1 in. diameter, 1 in. deep sample will be collected to determine whether PCBs are greater than 10 PPM are present in the bottom portion of the slab. If the concentrations are less than 50 PPM, then additional investigation locations will not be completed.
- Upon completion of concrete removal, the void created by concrete removal will be filled using gravel and/or asphalt. If a low permeability cover is not used as a surface completion, additional protective measures may be taken to eliminate intermixing of demolition debris with newly placed material.

- The remaining portions of the concrete slab contain PCBs less than 50 PPM. Upon completion of the building demolition and waste removal the slab will be washed, rinsed, and left in place.

5.2 MASONRY

As described above, limited screening level sampling was completed to determine the concentration of PCBs in masonry in 2009, which identified the presence of PCB less than 50 PPM. In order to confirm this limited screening, additional sampling was completed in 2015 to evaluate whether PCBs greater than 50 PPM are present and delineate these areas for the purposes of appropriately segregating waste streams resulting from the demolition of Building 52 as required. Details of sampling results, interpretation of the data, and the proposed transport and disposal of resulting waste are described in the sections below.

5.2.1 Wall Paint and Brick, and CMU (Walls)

5.2.1.1 Data Summary and Evaluation (Wall Paint)

Nine samples of loose paint associated with interior brick and one sample of loose paint associated with exterior brick were collected and analyzed to determine the presence of PCBs and TCLP lead (not including field duplicates or MS/MSD). Below is a discussion of results associated with PCB and lead sampling.

<u>PCBs</u>

Seven interior paint samples indicated the presence of PCBs greater than 50 PPM with concentrations that ranged between 53.6 PPM to 316 PPM; the one exterior paint sample did not contain PCBs at concentrations greater than 50 PPM. Interior and exterior brick samples (described above) were collected and analyzed at locations which coincided with painted surfaces. Historical documents do not indicate when paint was applied to the walls. Based on the range of PCB concentrations observed in the paint samples and the much lower concentration of PCBs observed in brick samples (with paint present in the samples), PCBs observed in the paint indicate that PCBs are present due to the manufacturing process of the paint. The EPA considers paint containing PCBs greater than 50 PPM to be a PCB bulk product, which can be managed as a non-hazardous waste. However, New York State considers PCBs contained in any material at concentrations greater than 50 PPM to be a hazardous waste. Therefore, paint resulting from scraping prior to demolition will be managed as a hazardous waste.

Results of PCB paint sampling are shown on Figure C.6 and in Table C.6.

Lead

Five of the nine interior wall paint samples contained TCLP lead greater than 5 PPM (ranged between 17.5 and 78.3 PPM) while remaining samples (including exterior wall paint) contained TCLP lead concentrations that ranged between 0.202 and 2.20 PPM. Based on these results, paint chips resulting from scrapping may be hazardous or nonhazardous based on lead concentrations. Upon completion of scrapping, resulting drums of paint chips may be sampled to characterize the waste to determine appropriate disposal requirements.

Results of TCLP lead paint sampling are shown on Figure D.4 and in Table D.4.

5.2.1.2 Data Summary and Evaluation (Brick and CMU Walls)

As was described in the 2015 SAP, samples were collected from masonry materials, which included wall brick, concrete block, and the concrete roof deck. Wall samples were generally collected at approximately: 0.5 ft., 4 ft., 11 ft., and 22 ft. AFF at locations that contained and did not contain paint. Eighty-four samples of interior brick and CMU and 12 samples of exterior brick were collected to determine the concentration of PCBs and TCLP lead (not including field duplicates or MS/MSD). Below is a discussion of results associated with PCB and lead sampling.

PCBs

Exterior Brick
Exterior brick samples contained PCBs at concentrations that ranged between ND and 0.122 PPM.

Interior Brick
Interior brick locations WAL-INB-001 and WAL-INB-013 contained PCBs greater than 50 PPM (62.4 PPM and 133.1 PPM at approximately 0.5 ft. AFF), one interior brick sample contained PCBs at a concentration of 24.6 PPM (22 ft. AFF), and the remaining 70 samples contained PCBs at concentrations that ranged between ND and 9.79 PPM). Based on the proximity of interior brick sampling locations that exhibit concentrations of PCBs greater than 50 PPM to the floor, the presence of PCBs greater than 50 PPM in wall brick sample is likely to be a result of a spill, release, or other unauthorized disposal. Once areas that contain PCBs greater than 50 PPM were identified, the horizontal extents were delineated based on requirements in §761.260 and §761.265 and was provided by the 2015 SAP.

Based on these requirements, brick samples were collected 5 ft. above and 5 ft. to the left and right of the initial sample indicating the presence of PCB remediation waste. The sample located 5 ft. below the initial sample, was completed on the floor. Prior to demolition, portions of the wall and concrete associated with PCB remediation waste that coincides with sampling conducted at WAL-INB-001 and WAL-INB-013 will be removed and managed as a NYS hazardous waste and TSCA waste.

Results of PCB masonry sampling are shown on Figures C.1 through C.3 and in Table C.3.

Lead

An evaluation, using a 90% confidence interval (CI), of the resultant TCLP lead concentration for comingled brick and masonry material was completed using the sampling and statistical analysis procedures as described in Chapter Nine of the SW-846 Compendium. This evaluation indicated that the concentration of TCLP lead in masonry demolition debris would be below 1.51 PPM, within a 90% CI. Based on this evaluation, demolition of the brick walls will not result in a hazardous waste.

Results of TCLP lead masonry sampling are shown on Figure D.2 and in Table D.2.

ACM

Roof tar was identified on the brick of the west side of Building 52 at the location where the former Building 52B was attached to Building 52. Testing results of roofing tar located on the west wall of Building 52 indicates the presence of asbestos.

Asbestos is not expected to be contained within brick; samples were not collected.

Results of ACM roofing tar sampling are shown on Figure F.1 and in Table F.1.

Evaluation or Sufficiency of Sampling Frequency

Brick that contains PCBs at concentrations greater than 50 PPM will be removed prior to demolition. Therefore, in order to determine the sampling frequency of remaining brick that will be managed as a bulk PCB waste, sample locations that exhibit concentrations greater than 50 PPM (WAL-INB-001 and WAL-INB-013) were removed from the data set. Once these samples were removed from the data set, the resulting interior and exterior wall sampling frequency was approximately one sample per 18 CY, which is sufficient to characterize the resulting waste stream; additional waste characterization samples will not be collected.

5.2.1.3 Demolition Approach and Disposal Strategy (Walls)

Based on these results, masonry associated with walls will be managed as follows:

- Lead is not present in brick or CMU walls at concentrations that will result in a waste stream that exhibits hazardous characteristics.

- Portions of wall brick and floor slab containing PCB concentrations greater than 50 PPM will be removed prior to demolition and managed as a NYS hazardous and TSCA waste and disposed of as a hazardous waste at CWM Emelle, operated by Waste Management located in Emelle, Alabama or an alternate landfill permitted to accept PCB Remediation Waste.

- Loose or peeling paint will be scraped prior to beginning demolition activities to reduce potential for worker and community exposure. Additional sampling will be conducted to characterize the waste to determine appropriate disposal requirements. However, for planning purposes, due to the presence of PCBs greater than 50 PPM and TCLP lead present greater than 5 PPM in approximately 50% of paint samples analyzed, this material may require transport and disposed of as a hazardous waste at CWM Emelle, operated by Waste Management located in Emelle, Alabama or an alternate landfill permitted to accept PCB Remediation Waste. If the waste characterization profile indicates the paint does not contain PCBs or lead at concentrations considered hazardous within New York State, then paint chips may be disposed of as a PCB bulk product waste at High Acres operated by Waste Management located in Fairport, New York.

- Roofing tar located on the west side of Building 52 will likely be abated prior to demolition; the actual disposal strategy will be designed by the contractor based on 12 NYCRR Part 56 (NYSDOL).

- Portions of the brick walls, which contains bonded paint, that do not exhibit concentrations of PCBs greater than 50 PPM or TCLP lead greater than 5 PPM will be managed as a PCB bulk product waste consistent with EPA guidance and transported and disposed at High Acres Landfill operated by Waste Management located in Fairport, New York.

- Based on the statistical evaluation completed in accordance with Chapter 9 of SW-846, lead is not present within the brick at concentrations that will result in a waste stream that exhibits hazardous characteristics.

5.2.2 Ceiling Coating and Concrete Roof Deck

5.2.2.1 Data Summary and Evaluation (Ceiling Coating)

Ten samples of a black coating, which is bonded to the ceiling, were collected and analyzed to determine the presence of PCBs and TCLP lead (not including field duplicates or MS/MSD). Below is a discussion of results associated with PCB and lead sampling.

PCBs

Concentrations of PCBs in the ceiling coating range between 16.87 to 492 PPM. Seven of the ten samples analyzed indicated the presence of PCBs greater than 50 PPM with concentrations that ranged between 58.5 PPM to 492 PPM. Roof deck samples (described below) were collected and analyzed at locations which coincided with the ceiling coating. Historical documents do not indicate when the ceiling coating was applied. Based on the range of PCB concentrations observed in the ceiling coating and the much lower concentration of PCBs observed in roof deck samples (with ceiling coating present in the sample), PCBs observed in the ceiling coating indicates that PCBs are present due to the manufacturing process of the coating. Based on these results, chips resulting from scrapping may be hazardous based on PCB concentrations.

Results of PCB ceiling coating sampling are shown on Figure C.7 and in Table C.7.

Lead

One of the ten ceiling coating samples contained TCLP lead greater than 5 PPM (11.6 PPM) while remaining samples contained TCLP lead concentrations that ranged between 0.0781 and 4.25 PPM. Upon completion of scrapping, resulting drums of paint chips may be sampled to characterize the waste to determine appropriate disposal requirements.

Results of TCLP lead ceiling coating sampling are shown on Figure D.5 and in Table D.6.

5.2.2.2 Data Summary and Evaluation (Roof Deck)

Eight samples of the underside of the roof deck were collected to determine the concentration of PCBs and TCLP lead (not including field duplicates or MS/MSD). Below is a discussion of results associated with PCB and lead sampling.

PCBs

Concentrations of PCBs in the roof deck ranged between ND and 206.6 PPM. One roof deck location contained in PCBs greater than 50 PPM (206.6 PPM), one roof deck sample contained PCBs at a concentration of 28.1 PPM, and the remaining six samples contained PCBs at concentrations that ranged between ND and 6.59 PPM). Based on this data, the presence of PCBs greater than 50 PPM in the roof deck sample is assumed to be a result of a spill, release, or other unauthorized disposal. Once an area containing PCBs greater than 50 PPM was identified, the horizontal extents were delineated based on requirements in §761.260 and §761.265 and the 2015 SAP. Remaining roof deck samples did not indicate the presence of PCBs greater than 50 PPM; the roof deck would not result in a hazardous or TSCA waste based on PCB concentrations.

Results of PCB roof deck sampling are shown on Figure C.7 and in Table C.7.

Lead

Results of roof deck sampling did not indicate the presence of TCLP lead greater than 5 PPM; the roof deck would not result in a hazardous waste based on TCLP lead concentrations.

Results of TCLP lead roof deck sampling are shown on Figures D.5 and in Table D.6.

ACM

Asbestos is not expected to be contained within this material; samples were not collected.

Sample Frequency

Once the sample containing PCBs greater than 50 PPM is removed from the data set, the resulting roof deck sampling frequency was one sample per 176 CY, which is sufficient to characterize the resulting waste stream; additional waste characterization samples will not be collected.

5.2.2.3 Demolition Approach and Disposal Strategy (Roof Deck and Ceiling Coating)

Based on these results, the roof deck will be managed in the following way:

- Lead is not present in the roof deck at concentrations that will result in a waste stream that exhibits hazardous characteristics.
- The portion of the roof deck containing PCB concentrations greater than 50 PPM will be removed prior to demolition and managed as a NYS hazardous and TSCA waste and disposed of as a hazardous waste at CWM Emelle, operated by Waste Management located in Emelle, Alabama or an alternate landfill permitted to accept PCB Remediation Waste.
- Loose or peeling ceiling coating may be scrapped prior to beginning demolition activities to reduce potential for worker and community exposure. Additional sampling will be conducted to characterize the waste (scraped ceiling coating) to determine appropriate disposal requirements. However, for planning purposes, due to the presence of PCBs greater than 50

PPM in ceiling coating samples, this material (scraped ceiling coating) will likely be managed as a NYS hazardous waste transported and disposed of at CWM Emelle, operated by Waste Management located in Emelle, Alabama. If the waste characterization indicates the ceiling coating does not contain PCBs or lead at concentrations considered hazardous within New York State, then the waste may be disposed of as a PCB bulk product waste at High Acres operated by Waste Management located in Fairport, New York.

- Portions of the concrete roof deck, which contains bonded ceiling coating, that do not exhibit concentrations of PCBs greater than 50 PPM or TCLP lead greater than 5 PPM, will be managed as a PCB bulk product waste and transported and disposed at High Acres Landfill operated by Waste Management located in Fairport, New York.

5.3 OTHER BUILDING MATERIALS

In addition to building materials described in previous sections, several additional material types were identified as potentially containing concentrations of PCBs or lead that may require transport and disposal as a hazardous waste. Details of the materials and sampling are provided below.

5.3.1 Interior Steel

Building 52 contains painted interior steel columns and steel roof trusses overhead supporting the roof deck. Below is a discussion of results associated with PCB and lead sampling.

5.3.1.1 Data Summary and Evaluation (Steel Paint)

Twenty samples of paint applied to interior steel columns and steel roof trusses were collected and analyzed to determine the presence of PCBs and TCLP lead (not including field duplicates or MS/MSD). Samples were collected throughout the building from multiple heights.

<u>PCBs</u>

Nineteen interior steel column and steel roof truss samples indicated the presence of PCBs greater than 50 PPM with concentrations that ranged between 86.3 PPM to 325 PPM. Based on the narrow range of PCB concentrations observed and the wide distribution of sample locations, PCBs observed in the paint indicates that PCBs are present due to the manufacturing process of the paint and will become a PCB bulk product waste as a result of the demolition process.

Results of PCB paint sampling are shown on Figure C.6 and in Table C.6.

<u>Lead</u>

Twenty interior steel column and steel roof truss samples indicated the presence of TCLP lead greater than 5 PPM (ranged between 12.7 and 111 PPM). Based on these results, loose paint scrapped prior to demolition will be managed as a hazardous waste. Paint applied to interior steel would not result in interior steel becoming a characteristically hazardous waste.

Results of TCLP lead sampling are shown on Figure D.4 and in Table D.5.

ACM

Asbestos is not expected to be contained within this material; samples were not collected.

5.3.1.2 Demolition Approach and Disposal Strategy (Steel)

Based on these results, interior steel will be managed in the following way:

- Loose or peeling paint will be scraped prior to beginning demolition activities to reduce potential for worker and community exposure. Additional sampling may be conducted to characterize the waste to determine appropriate disposal requirements. However, for planning purposes, due to the presence of PCBs greater than 50 PPM and TCLP lead present greater than 5 PPM in nearly all of paint samples analyzed, this material will likely be managed as a NYS hazardous and TSCA waste and disposed of as a hazardous waste at CWM Emelle, operated by Waste Management located in Emelle, Alabama or an alternate landfill permitted to accept PCB Remediation Waste. If the waste characterization profile indicates the paint does not contain PCBs or lead at concentrations considered hazardous within New York State, then paint chips may be disposed of as a PCB bulk product waste at High Acres operated by Waste Management located in Fairport, New York.

- Based on the presence of paint containing PCBs greater than 50 PPM, all interior steel with paint will be managed as a PCB bulk product waste.

5.3.2 Expansion Joints

Building 52 contains more than 1,500 feet of expansion joints that contain caulk in the concrete floor slab. Below is a discussion of results associated with PCB and lead sampling.

5.3.2.1 Data Summary and Evaluation (Expansion Joint)

Samples were collected at 18 expansion joint caulk locations and analyzed to determine the presence of PCBs (not including field duplicates or MS/MSD); nine expansion joint caulk samples were collected and analyzed to determine the presence of TCLP lead (not including field duplicates or MS/MSD).

PCBs

Seventeen expansion joint caulk samples indicated the presence of PCBs greater than 50 PPM with concentrations that ranged between 66.9 PPM to 3,040 PPM. Historically, PCBs were commonly used in manufacture of caulking material, which would result in a Bulk PCB Waste once removed. However, based on New York State hazardous waste rules, materials containing PCBs greater than 50 PPM are considered a hazardous waste. Therefore, based on exhibited concentrations of expansion joint caulk, this material would require disposal as a hazardous waste.

Results of PCB expansion joint sampling are shown on Figure C.4 and in Table C.4.

Lead

Four expansion joint samples indicated the presence of TCLP lead greater than 5 PPM (ranged between 5.14 and 71.5 PPM). Based on these results, expansion joint caulk may be hazardous or nonhazardous based on lead concentrations. Additional sampling will be conducted to characterize the waste to determine appropriate disposal requirements.

Results of TCLP lead expansion joint sampling are shown on Figure D.2 and in Table D.3.

ACM

Asbestos is not expected to be contained within this material; samples were not collected.

5.3.2.2 Demolition Approach and Disposal Strategy (Expansion Joints)

Based on these results, expansion joints will be managed in the following way:

- Due to the presence of PCBs greater than 50 PPM in the expansion joint caulk and the three samples containing TCLP lead greater than 5 PPM, additional sampling of caulk and removed concrete will be completed at five locations to characterize the resulting waste. Results may indicate that this material can be disposed of a PCB bulk product waste at High Acres operated by Waste Management located in Fairport, New York. If additional sampling is not conducted or if PCB and TCLP lead results indicates results greater than 50 PPM and/or 5 PPM, respectively, then the expansion joint and associated concrete will be managed as a NYS hazardous and TSCA waste and disposed of as a hazardous waste at CWM Emelle, operated by Waste Management located in Emelle, Alabama or an alternate landfill permitted to accept PCB Remediation Waste.

- Expansion joint caulk will be removed after completion of the demolition and prior to power washing the pad. This will be completed by cutting out the expansion joint plus 6 in. on either side of each expansion joint observed (~1,500 ft.).

5.3.3 Roofing Material

5.3.3.1 Data Summary and Evaluation (Roofing Material)

Eight roof membrane samples were collected and analyzed to determine the presence of PCBs and TCLP lead (not including field duplicates or MS/MSD), which supplemented Historical samples completed in 2009. Additionally, two roof flashing samples were collected in 2009 and analyzed for PCBs and TCLP lead.

PCBs

The maximum observed concentration of PCBs in the roof membrane resulting from 10 samples (current and Historical) was 4.17 PPM. PCBs were not detected in roof flashing material collected in 2009. Therefore, the roofing material is not a regulated waste based on PCB concentration.

Results of PCB roofing material sampling are shown on Figure C.7 and in Table C.7.

Lead

One roof membrane sample indicated the presence of TCLP lead greater than 5 PPM (9.33 PPM). TCLP lead concentrations of nine roof membrane samples ranged between ND and 4.15 PPM. TCLP lead was not detected in roof flashing material collected in 2009. In a demolition scenario, roofing material will likely be demolished as part of the roof demolition. Based on these results and the likely roofing material demolition strategy, the presence of TCLP lead at one location would not result in the waste stream becoming a characteristically hazardous waste due to the presence of lead.

Results of TCLP lead roofing material sampling are shown on Figures D.5 and in Table D.6.

ACM

Existing roof membrane asbestos samples (two) were supplemented with eight additional samples of roofing membrane to determine the presence of asbestos. Asbestos was not detected in any of the 10 samples collected.

Two flashing samples collected in 2009 contained asbestos. Additionally, roofing tar was observed and three samples were collected to determine the concentration of asbestos. Asbestos was detected in one of the three roofing tar samples.

Results of ACM roofing material sampling are shown on Figures F.1 and in Table F.1.

5.3.3.2 Demolition and Disposal Strategy (Roofing Material)

Based on these results, the roof flashing and tar will be managed as ACM. The abatement will be designed based on 12 NYCRR Part 56 (NYSDOL) by the contractor. Once the flashing and tar are abated, the remaining roofing membrane can be managed as a non-regulated waste as part of the roof demolition.

5.3.4 Window Caulk and Glaze

Windows are present in the roof monitor and on the perimeter walls of Building 52. Caulk and glaze samples were collected to determine the concentration of PCBs, TCLP lead, and asbestos.

5.3.4.1 Data Summary and Evaluation (Window Caulk and Glaze)

Results of PCB and TCLP lead sampling are discussed below.

PCBs

Approximately 83 window caulk and glaze samples were collected and analyzed from windows located around the perimeter of the building and within roof monitors to determine the presence of PCBs. Based on the results below, PCBs are present at concentrations that exceed 50 PPM within most monitor caulk locations. Window caulk and glaze are building materials that were commonly manufactured with PCBs and will become a PCB bulk product waste as a result of the demolition process. Below is a summary of PCB results from window sampling.

Media	No. of locations	No. of detections >50 PPM*	Range of detections
Monitor window caulk	14	13	42.7 - 133.7
Monitor window glaze	14	4	5.66 - 192.6
Wall window caulk	25	9	4.94 - 171.1
Wall window glaze	30	1	1.82 - 48.2

Results of PCB window caulk and glaze sampling are shown on Figure C.5 and in Table C.5.

<u>Lead</u>

Approximately 73 window caulk and glaze samples were collected and analyzed from windows located around the perimeter of the building and within roof monitors to determine the presence of TCLP lead. Based on the results below, TCLP lead is present at concentrations that exceed 5 PPM within more than 80% of samples collected from window caulk and glaze. Below is a summary of PCB results from window sampling.

Media	No. of locations	No. of detections >5 PPM	Range of detections (PPM)
Monitor window caulk	14	14	23.7 - 252
Monitor window glaze	14	13	4.9 - 146
Wall window caulk	25	18	0.04 - 146
Wall window glaze	30	24	0.84 - 115

Results of TCLP lead window caulk and glaze sampling are shown on Figures D.3 and in Table D.4.

<u>ACM</u>

Historical sampling in 2009 indicated the potential presence of ACM associated with window caulk and glaze. Therefore, approximately 34 window caulk and glaze samples were collected from windows on the building perimeter and on the roof monitors. Below is a summary of sampling results.

Media	No. of locations	No. of ACM detections	Range of detections (%)
Monitor window caulk	5	3	0 - 11
Monitor window glaze	2	0	0
Wall window caulk	15	11	0 - 14
Wall window glaze	17	0	0

Results of ACM window caulk and glaze sampling are shown on Figures F.1 and in Table F.1.

Sample Frequency

Based on the 2015 SAP, the proposed sampling frequency was one sample per 50 ft. of building length. This sampling frequency was achieved for PCBs and TCLP lead on the west and north sides of the building. Windows on the east side of the building were boarded up resulting in limited access conditions and a sampling frequency of one sample per 80 ft. of building length for PCBs and TCLP lead was achieved. Windows on the south side of the building were either infilled with CMU or did not contain caulk or glaze; samples were not collected from the south side of Building 52. Based on 12 NYCRR Part 56 (NYSDOL), one sample per material type is required to determine the presence (or two samples per material type to determine the absence) of ACM resulting in a lower required frequency of samples collected. Based on data obtained, an adequate number of samples were collected to determine the waste characteristics and disposal strategy.

5.3.4.2 Demolition Approach and Disposal Strategy (Window Caulk and Glaze)

The final demolition and disposal strategy for the windows will be determined by the contractor based on 12 NYCRR Part 56 (NYSDOL) (for ACM abatement), NYS hazardous waste regulations, and TSCA. Based on the presence of ACM, the most stringent monitoring and worker PPE requirements for demolition of the windows are the asbestos rules (NYSDOL). Potential scenarios are described below.

- If the windows are demolished as part of the building demolition (i.e.. brick walls and roof), then demolition of Building 52 will be managed as an asbestos abatement. Elevated concentrations of TCLP lead will likely not result in a hazardous waste due to the volume of brick and roof deck. However, due to the presence of PCBs in the caulk and glaze, the waste will be disposed of as a PCB bulk product waste.

- If the windows are abated prior to demolition of the building, then the resulting waste stream (windows) will likely be hazardous due to the presence of TCLP lead greater than 5 PPM.

5.3.5 Sumps and Drains

Fifteen sumps/vaults were identified within Building 52 that may have been used to support manufacturing processes (locations shown in Appendix G, Figure G.1). Each accessible sump/vault was evaluated to determine the presence of residual materials that may contain PCBs or lead as discussed below. Floor drains (will be plugged during demolition activities) were not accessed.

5.3.5.1 Data Summary and Evaluation (Sumps)

Fifteen sumps were evaluated, two of which contained sufficient material that could be sampled; one sump (FLR- SMP-008) contained PCBs at a concentration of 218 PPM. TCLP lead results of samples collected from each sump were less than 5 PPM. The remaining sumps were either welded shut, were filled with gravel, or were filled with water.

Results of PCB sump residual sampling are shown on Figures C.4 and D.2 and in Table C.4 and D.3.

5.3.5.2 Demolition and Disposal Strategy (Sumps)

Prior to demolition of the building, sumps containing material containing PCBs greater than 50 PPM will be removed and cleaned. The resulting waste stream may be managed as a NYS hazardous and TSCA waste and disposed of as a hazardous waste at CWM Emelle, operated by Waste Management located in Emelle, Alabama or an alternate landfill permitted to accept PCB Remediation Waste. Water contained within sumps will be removed and the sumps inspected to determine whether residual wastes are present. If residual wastes are present, samples will be collected and analyzed to determine PCBs and TCLP lead concentrations. Waste water will be characterized and disposed. Prior to demolition, sumps may be covered with the lid currently in place, filled with gravel and covered during demolition, or backfilled with concrete, cold patch or similar. Floor drains will be appropriately plugged prior to demolition.

5.3.6 Overhead Piping

Overhead unpainted piping, potentially used within former processes, was identified and evaluated to determine whether residual PCBs are present. Pipes that were likely associated with storm water from roof drains, potable water, electrical conduit, or steam were identified as such and not further evaluated. Remaining pipes were accessed to determine whether residual material containing PCBs is present as described below.

- Approximately five pipes were identified as potentially being part of the Historical manufacturing process. Each pipe was evaluated and determined to be open to atmosphere and not under pressure.
- A reciprocating saw was used to cut a “V” notch in the pipes and a Mini-Rae 5 gas meter was used to assess the air quality inside the pipe (O2, CO, H2S, LEL, and VOCs), which resulted in levels that indicated inert conditions.
- The pipes were visually inspected to determine that residual material or liquids are not present.

Results of this evaluation indicated that residual liquids or sludges were not present in the pipes and, thus, samples were not collected. Prior to or during demolition, overhead pipes will be either disposed of or recycled.

5.3.7 Other Waste Streams

The Building Decommissioning Assessment (BDA) identified additional materials that will require special handling. Materials identified include Universal Wastes, unknown wastes, gas cylinders, batteries, and debris. These materials will be characterized as required by the contractor and appropriately disposed. A waste inventory resulting from completion of the BDA are shown in Appendix J.

5.4 ASBESTOS CONTAINING MATERIAL

In addition to materials described above, additional materials and equipment located within Building 52 were evaluated to determine the presence of asbestos.

5.4.1 Data Summary and Evaluation (Other ACM)

In addition to window caulk and glazing samples discussed in Section 4.3.4 of this document, samples were collected of additional building materials that were suspected to contain asbestos. A summary of materials tested and results are provided in the table below.

Media	No. of locations	No. of ACM detections	Range of detections (%)
Drywall and spackle	7	0	0
Overhead crane panel insulation	3	3	67-80
Overhead crane electrical box transite	2	2	23-27
Crane electrical box wire	2	0	0

Additionally, brakes on the overhead crane and transite panels potentially located in electrical boxes throughout the building on roof trusses could not be accessed. These materials were identified as potentially containing asbestos and will need to be evaluated prior to demolition.

Results of ACM sampling are shown on Figures F.1 and F.2 and in Table F.1.

5.4.2 Demolition and Disposal Strategy (Other ACM)

Based on these results, materials listed above and, if identified, similar materials will be managed as ACM. Abatement of these materials will be designed based on 12 NYCRR Part 56 (NYSDOL) by the contractor.

5.5 DISPOSAL STRATEGY SUMMARY

As described above, following waste streams have been identified with associated recommended disposal strategy as described in the table below.

Media	**Pre demolition or demolition action**	**Waste type**	**Disposal location**
Concrete floor slab	(1) Remove portions of concrete slab greater than 50 PPM prior to demolition (2) Leave remaining portions of slab in place	PCB remediation waste	CWM; Emelle, AL or similar
Masonry walls with bonded paint	(1) Remove portions of brick walls greater than 50 PPM prior to demolition (2) Demolish with bonded paint	(1) PCB remediation waste (2) Bulk PCB product waste	(1) CWM; Emelle, AL or similar (2) High Acres; Fairport, NY

Media	Pre demolition or demolition action	Waste type	Disposal location
Roof deck with bonded coating	(1) Remove portions of roof deck greater than 50 PPM prior to demolition (2) Demolish remainder of roof deck with bonded paint	(1) PCB remediation waste (2) Bulk PCB product waste	(1) CWM; Emelle, AL or similar (2) High Acres; Fairport, NY
Interior paint and ceiling coating chips	Scrape loose paint and coating and place in drums, collect samples to complete waste profile	(1) If characterization indicates PCBs<50 PPM, TCLP lead <5 PPM, not regulated (2) If characterization indicates PCBs>50 PPM, TCLP lead >5 PPM, hazardous	(1) CWM; Emelle, AL, or similar, if hazardous (2) High Acres; Fairport, NY if not regulated
Interior steel	Dispose	Bulk PCB product waste	High Acres; Fairport, NY
Expansion joints	Cut out 6'' in each side of joint, collect samples to complete waste profile	(1) If characterization indicates PCBs<50 PPM, TCLP lead <5 PPM, not regulated (2) If characterization indicates PCBs>50 PPM, TCLP lead >5 PPM, hazardous	(1) CWM; Emelle, AL, or similar, if not regulated (2) High Acres; Fairport, NY if hazardous
Roofing material	Remove flashing and roofing tar; demo remaining portions of roofing materials	ACM/Non-regulated	High Acres; Fairport, NY
Window caulk and glaze	Contains ACM, abatement TBD by asbestos contractor	Bulk product/ACM	High Acres; Fairport, NY
Residuals in sumps	Remove prior to demo, fill sump	PCB remediation waste	CWM; Emelle, AL or similar
Overhead piping	Recycle or demo with building	Non-regulated	High Acres; Fairport, NY
ACM	Abatement TBD by asbestos contractor	ACM	High Acres; Fairport, NY

6. Quality Assurance and Data Validation

The information below summarizes sample quality assurance sampling and third party validation.

6.1 QUALITY ASSURANCE

Samples were collected using equipment and procedures described in the 2015 SAP. Sample containers were properly labeled, with sampling records maintained and pertinent information transcribed to chain-of-custody forms. Sample bottles were stored in appropriate containers prepared by the laboratory.

Field Quality Assurance/Quality Control (QA/QC) samples were collected during sampling which included field duplicate samples and matrix spike/matrix spike duplicate samples, trip blanks, and field equipment blanks. Blind field duplicate samples were collected to evaluate matrix interference and sampling and analytical precision of analyses. Field duplicate and MS/MSD sampling frequency is described below.

Sample Media	No. of Samples	No. of Field Dups	FD Frequency	No. of MS/MSD	MS/MSD Frequency
Concrete slab	203	22	11%	14	7%
Brick walls/CMU	96	13	14%	10	11%
Window caulk	39	3	8%	3	8%
Window glaze	44	3	7%	4	9%
Expansion joint caulk	18	2	11%	1	6%
Paint	53	6	11%	6	11%
Ceiling coating	10	1	10%	1	10%
Roof deck	13	1	8%	2	15%
Roof membrane	8	1	13%	1	13%
Miscellaneous media	5	-	-	1	20%
Total	**489**	**52**	**11%**	**43**	**9%**

Field equipment blanks were collected to evaluate decontamination procedures and/or ambient sources of COC. Field equipment blanks were collected for non-disposable equipment once per day per field crew.

Laboratory analytical reports received and field data collected were added to the project specific database.

6.2 DATA VALIDATION

Select analytical results for environmental samples collected as part of Building 52 investigation were reviewed to determine the data usability in accordance with the procedures outlined in the project specific quality assurance project plan (QAPP). Consistent with the procedures used during the PDI, only samples that represented the extent of the removal action were reviewed; that is sample locations that exhibited concentrations of total PCBs greater than 50 PPM which will be removed were not evaluated. Full validation is currently being completed by a third party validator (Environmental Standards, Inc. (ESI) and will be provided after complete.

During the data validation process, the following quality control/quality assurance (QA/QC) criteria were reviewed:

- Sample Data Reporting Format
- Holding Time and Sample Preservation Compliance
- Initial Calibration and Continuing Calibration Procedures
- Field/Method/Preparation Blank Sample Analysis
- System Monitoring Compound Recoveries (where applicable)
- Laboratory Control Samples, Matrix Spike/Matrix Spike Duplicate Recoveries
- Field Duplicate Sample Analysis

Below is a brief description of the procedures used in the evaluation and example corrective actions implemented if needed. The intent of this summary is to assist the data user with an understanding of the data qualification procedures implemented for their use in the evaluation of the current site conditions.

6.2.1 Sample Data Reporting Procedures

The reported results for each project sample were provided in a NYSDEC Analytical Services Protocol (ASP) Category B deliverables format and was provided to ESI. The data reporting format will be evaluated within each SDG and when found to be non-compliant with the project data quality objectives (DQOs) additional documentation will be requested and received from the laboratory as part of the validation process.

6.2.2 Holding Time and Sample Preservation Compliance

Maximum allowable holding times were measured from the time of sample collection to the time of sample preparation and analysis for each project sample. When a project sample was identified as analyzed after the expiration of the USEPA recommended maximum holding time, the reported sample results were qualified with a "J" as estimated and non-detected parameters were qualified with an "R" as rejected.

6.2.3 Initial Calibration and Continuing Calibration Procedures

Instrument calibration procedures for the analysis of project samples were evaluated based on the requirements of the National Functional Guidelines and/or prescribed by the laboratory standard operating procedures (SOPs) when not directly addressed by the guidelines.

In cases where target compounds were detected and reported using a RRF from a non-compliant continuing calibration standard, the result was flagged with a "J" and the reporting limits for non-detect samples were flagged with a "UJ" indicating that the reported values and reporting limits are estimated.

6.2.4 Equipment/Method Blank Sample Analyses

The presence of target compounds in associated equipment or method blank samples prepared and analyzed concurrently with the project samples was evaluated as part of each laboratory sample data package. If target compounds were reported at a concentration greater than the method detection limit (MDL) for organic parameter analyses the associated sample results were qualified.

In the case of method blank samples for organic parameter analyses, if the target compound detected was identified, an action level 5 times (5x) the blank contamination level was calculated. In accordance with EPA If the concentration contaminant detected in the associated project samples was between the MDL and the action level, the result was flagged with a "U". This data qualification indicates that the parameter was not present in the sample at a concentration greater than the adjusted reporting level.

6.2.5 System Monitoring/Surrogate Compound Recoveries

System monitoring/surrogate compounds were added to each sample prior to analysis of PCBs by EPA Method 8082 to confirm the efficiency of the sample preparation procedures. The calculated recovery for each surrogate compound was evaluated to confirm the accuracy of the reported results.

Generally, sample extracts prepared for the analysis of PCBs by EPA Method 8082 required dilution prior to analysis. This dilution procedure was implemented by the laboratory to enable quantification of the detected target analytes within the instrument calibration range. Where applicable, the laboratory qualified the reported results indicating the system monitoring compound recovery could not be calculated due to a sample extract dilution.

In cases where the surrogate recovery fell outside the laboratory acceptance criteria, the results greater than the reporting limit were qualified "J", and the reporting limits for non-detect samples were flagged "UJ", as estimated.

6.2.6 Laboratory Control Samples, Matrix Spike/Matrix Spike Duplicate Recoveries

Analytical precision and accuracy were evaluated based on the laboratory control (LCS) and matrix spike (MS/MSD) sample analyses performed concurrently with the project samples. For LCS analyses, after the addition of a known amount of PCB into laboratory reagent water, the LCS was prepared and analyzed to confirm the ability of the analytical system to accurately detect and quantify the target analytes. For MS/MSD samples, after the addition of a known amount of PCB to the sample matrix, the MS/MSD samples were prepared and analyzed to confirm the ability of the analytical system to detect and quantify the target analytes within the sample matrix.

The percent recovery calculated for each target analyte was evaluated for compliance with the laboratory specific acceptance criteria. If the calculated percent recovery fell below the acceptance criteria, the result for the project samples analyzed concurrently was qualified with a "J" as estimated or "UJ" if reported as non-detect.

6.2.7 Field Duplicate Sample Analysis

Field duplicate samples were collected and analyzed to determine the precision for the sampling and analysis process through calculation of the relative percent difference (RPD) between the original and duplicate sample PCBs concentrations. If the calculated RPD for analytes detected at concentrations greater than five times (5x) the reporting limit exceeded the RPD criteria, the reported results were qualified "J" as estimated.

6.2.8 Validation Completeness

Based on the iterative nature of the program completed during several mobilizations, sample validation is not complete. Upon completion of validation, updated tables will be provided. Any changes to conclusions or interpretations resulting from completion of the validation process will be provided as an addendum.